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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,426	11/20/2003	David Reagor	S-100,556	3404
35068	7590	01/10/2006	EXAMINER	
UNIVERSITY OF CALIFORNIA LOS ALAMOS NATIONAL LABORATORY P.O. BOX 1663, MS A187 LOS ALAMOS, NM 87545			LE, DANH C	
		ART UNIT	PAPER NUMBER	
		2683		

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/719,426	REAGOR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	DANH C. LE	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 5 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 16 December 2005.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 1-10 is/are allowed.

6) Claim(s) 11-23 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**1. Claims 10, 11, 13, 18, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle (US 2003/0161411) in view of Jenskin (US 6,088,351).**

As to claim 10, McCorkle teaches a through-the-earth communication system (figure 20, 21) comprising:

a digital signal input device (115);

a transmitter operating at a predetermined frequency sufficiently low to effectively penetrate useful distances through-the earth (paragraph 0010), receiving said digital signal input and providing said digital input signal to a data compression circuit that is connected to an encoding processor (2007);

an amplifier (2010) receiving encoded output from said encoding processor for amplifying said encoded output and outputting said encoded output to an antenna (2011);

a receiver (2001) having an antenna receiving said encoded output followed by a band pass filter (paragraph 281) being connected to a decoding processor whose output is connected to an output data.

McCorkle fails to teach data decompressor, said data decompressor providing a decompressed digital signal. Jenskin teaches data decompressor, said data decompressor providing a decompressed digital signal (figure 19, 128). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Jenskin into the system of McCorkle in order to put data into its original format.

As to claim 11, the combination of McCorkle and Jenskin teaches the apparatus as described in Claim 10, wherein said digital signal Input device is a digital video camera (McCorkle paragraph 318).

As to claim 13, the combination of McCorkle and Jenskin teaches the apparatus as described in Claim 10, wherein said encoding processor operates using quantum phase shift keying (paragraph 005).

As to claim 18, McCorkle teaches a method of conducting through-the-earth communication (figure 20, 21, paragraph 0252, 0253) comprising the steps of:

inputting an analog signal;

digitizing said analog signal;

compressing said digitized signal;

encoding said compressed digitized signal to encode a predetermined data stream into said compressed digitized signal; and

outputting said encoded compressed digitized signal through an antenna at a predetermined frequency that is sufficiently low to effectively penetrate useful distances through-the-earth as a transmitted signal;

receiving said transmitted signal with an antenna after said transmitted signal has propagated through-the-earth;

converting said transmitted signal from an analog signal to a digital signal decoding said digital signal;

McCorkle fails to teach decompressing said digital signal and outputting said decoded decompressed digital signal. Jenskin teaches decompressing said digital signal and outputting said decoded decompressed digital signal (figure 19, 128).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Jenskin into the system of McCorkle in order to put data into its original format.

As to claim 22, the combination of McCorkle and Jenskin teaches a method as described in Claim 19, wherein said step of outputting said decoded decompressed digital data includes outputting an audio signal (Jenskin, col.4, lines 1-29).

**2. Claims 15, 16, 18, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle (US 2003/0161411) and Jenskin (US 6,088,351) in view of Butters (US 2005/0176391).**

As to claims 15, 16, 18, 20, 21, the combination of McCorkle and Jenskin teaches a through the earth communication, the combination of McCorkle and Jenskin fails to teach predetermined frequency is approximately 4 Khz, 7 Khz, the antenna is a SQUID detector connected to a flux locked loop and outputting to a speaker (paragraph 0065, 71, 97). Therefore, it would have been obvious to one of ordinary skill in the art

at the time the invention was made to provide the teaching of Jenskin into the system of McCorkle in order to transmit data with low frequency.

**3. Claims 12, 14, 17, 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle (US 2003/0161411) in view of Jenskin (US 6,088,351).**

As to claims 12, 14, 17, 23, the combination of McCorkle and Jenskin teaches a through the earth communication, the combination of McCorkle and Jenskin fails to teach the antenna is a loop antenna, the encoding processor operates using a QAM-16 processor, the band pass filter is of the wideband 4-pole elliptic design and inputting an analog signal is accomplished by use of a microphone. However, the examiner takes Official Notice that these reciting limitations are known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of above reciting limitations into the system of McCorkle and Jenskin in order to enhance the system performance of the ultra wide bandwidth communication.

***Response to Arguments***

Applicant's arguments filed 10/28/05 have been fully considered but they are not persuasive.

On paragraph 5 page 7 of the applicant's remark, the applicant argued that McCorkle reference is not a proper reference for a 103(a) rejection.

In response, the examiner believes McCorkle reference is a proper reference for a 103(a) rejection because the McCorkle's application was filed on November 27, 2002 which was before the provisional application was filed on June 26, 2003 and addition both applications were different assignee.

On paragraph 6 page 7 of the applicant 's remark, the applicant argued that McCorkle reference does not teach through-the-earth communications.

In response, the examiner believes McCorkle reference teaches through-the-earth communications on paragraph 0025 by generating a waveform constructed according to the present invention is also able to penetrate through obstructing objects such as wall or media such as earth.

***Allowable Subject Matter***

Claims 1-10 are allowed in the previous Office Action.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

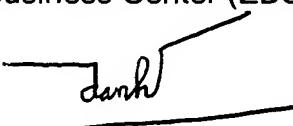
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANH C. LE whose telephone number is 571-272-7868. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM TROST can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
January 6, 2006.  
DANH CONG LE  
PATENT EXAMINER

  
WILLIAM TROST  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600